INVESTMENT POLICY STATEMENT (IPS)

BOARD APPROVED: 02/18/2011

ARIZONA STATE RETIREMENT SYSTEM

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PURPOSE

The purpose of this Investment Policy (IPS) is to set forth the investment principles, beliefs, goals & objectives, constraints and establish the guidelines for the development and implementation of the Arizona State Retirement System (ASRS) strategic and tactical asset allocation policy.

The ASRS recognizes that a well-articulated investment policy is important to the long-term success of achieving the ASRS investment objectives. As such, the ASRS has developed this IPS with the following goals in mind:

- To clearly and explicitly establish the objectives and parameters that govern the investments of the ASRS' assets.
- To establish a target asset allocation that is long-term in nature but dynamic to allow the ASRS to take advantage of market opportunities which is expected to achieve its investment rate of return objectives.
- To help protect the financial health of the ASRS through the implementation of this policy statement.
- To establish a framework for monitoring investment activity, and promote effective communication between the Board, Staff, and other involved parties.

INVESTMENT PRINCIPLES

ASRS Investment Principles* represent the origin of the ASRS investment process from which the goals and objectives are established on both a total fund and portfolio level basis. As a reference, these four (4) Investment Principles are listed below along with a narrative regarding their applicability to broader agency considerations.

1. Maximize the Fund Rate of Return for an Acceptable Level of Fund Risk.
2. Achieve a Long-term Fund Rate of Return Equal to or Greater than the Actuarial Assumed Interest Rate.
3. Mitigate Employee and Employer Contribution Rate Volatility.
4. Achieve a Long-term Economic and Actuarial Funded Status of Approximately 100%.

The first principle above has an asset oriented focus. Here, the returns generated or earned by the investment Fund should be considered in conjunction with the risk or volatility that the Fund will support, where risk is essentially the possibility of a change in the value of the ASRS Fund attributed to changes in economic conditions, interest rates, dividend policy and other variables in any given year.

The second principle above has a liability oriented focus. Here, the returns generated or earned by the investment Fund should be considered in conjunction with the actuarial assumed interest rate, where this interest rate is essentially an estimate of the long-term average of the combination of expected inflation rates and expected real rates of return. The actuarial assumed interest rate is also the discount rate used to calculate the present value of liabilities.

The third principle above has a contribution-rate orientation focus. Here, the structuring of the investment Fund should be considered in conjunction with the level, volatility, and direction of the contribution rates that will need to be paid by both employees and employers in the Fund. In general, lower levels and volatility in contribution rates are preferred.

The fourth principle above has a funded-status oriented focus. Here, the structuring of the investment Fund should be considered in conjunction with the level, volatility, and direction of the economic and actuarial funded status of the Fund. Although both actuarial and economic funded status levels are valuable for discussion and decision-making, economic-funded status is more reflective of financial condition and long-term policy implications. Economic-funded status is defined as the actual or market value of investments as a percentage of the actual or market value of liabilities and excludes such accounting constructs as smoothing and amortization.

Collectively, the four ASRS Investment Principles incorporate the following elements that are important for a fund's comprehensive investment structure:

1. Complementary use of absolute and relative rates-of-return perspectives.
2. Complementary use of asset-only and asset-liability perspectives.
3. Complementary use of economic and actuarial perspectives.

Though important, Safety of Principal is not denoted as a separate principle, given its incorporation in other principles and the general acceptability of Modern Portfolio Theory. Liquidity of the Fund is also not denoted separately as it is a normal investment operating function and acts more as a constraint than an investment principle.

*Board approved; reviewed annually via the ASRS Strategic Plan and as part of ASRS Asset Allocation Study.

INVESTMENT MANAGEMENT INVESTMENT BELIEFS

The ASRS has developed the following Investment Beliefs to ensure the development of congruent and synergistic investment strategies, and to ensure the effective and efficient allocation of resources.

These Investment Beliefs determine the general paradigm within which investment strategies are developed, investment ideas are reviewed, and investment decisions are implemented. Modifications to these Investment Beliefs will occur if expectational, academic, experiential, historic, and/or statistical perspective suggests that a superior belief system exists.

1. **Asset Class Decisions are Key**: In general, decisions with respect to what asset classes and sub-asset classes to invest in, and the allocations to these asset classes and sub-asset classes, have a

greater impact on total fund investment returns than decisions in which specific securities to invest.

2. **Theories and Concepts should be Sound**: Over longer periods, investment outcomes (rates of return) conform to logical theories and concepts. We believe that significant deviations from theoretically and conceptually sound investment constructs (e.g., the internet bubble or the pre-subprime erosion of risk premium) are usually not sustainable.

3. **House Views should be Developed**: Development and articulation of sound House Views (such as perspectives on interest rates, corporate spreads, and security pricing) will ensure consistency among investment decisions, clarity of investment direction, baselines for debates, and conformity of understanding.

4. **Investment Strategies should be Forward Looking**: Investment strategies should be developed based upon forward looking insights rather than simply adhering to previous successful strategies.

5. **Information Universes are Multiple**: Asset class valuations and security valuations are significantly affected by:

   a) Endogenous outcomes (such as the level and growth rates of earnings, GDP growth rates, and competitive barriers) that are probabilistic; and that these outcomes are typically analyzed well by the investment industry.

   b) Random outcomes (such as natural disasters, and certain supply and demand shocks) that are virtually unpredictable; outcomes are typically not analyzed directly by the investment industry.

   c) Exogenous outcomes (such as foreign policies, and global cultural interactions) that can possibly be modeled; and that these outcomes are typically not analyzed by the investment industry.

6. **Markets are Generally Informationally Efficient:**

   a) Asset class valuations (e.g., stock market levels versus interest rate levels) are often in equilibrium with one another, but that anomalous situations do occur which result in disequilibria between asset class valuations. These disequilibria may offer valuable investment opportunities.

   b) Security relative valuations (e.g., IBM versus Cisco) are often in equilibrium with one another, but that anomalous situations do occur which result in disequilibria between security valuations. These disequilibria may offer valuable investment opportunities; the extent of market informational efficiency varies across asset classes.

7. **Market Frictions are Relevant**: Market frictions (such as including management fees, carried interest, revenue sharing, expenses, costs, transaction spreads, market impacts, taxes, and commissions) are known with greater certainty than expected returns and are significantly detrimental to investment performance. Investments and/or transactions should be initiated only to the extent they are undertaken based upon a strong level of conviction that they will result commensurately in increased investment returns or decreased risks net of market frictions.

8. **Internal Investment Professionals are Beneficial**: In-house investment management operation that is engaged in internal portfolio management results in (1) better investment decision making for the ASRS, (2) are closely aligned with the purpose of the ASRS than most external parties, (3) have a greater understanding of the risk and reward tolerance of the ASRS than most external parties, and (4) at the margin, in-house investment personnel can impact direct investment negotiations with vendors, as well as influence investment industry conditions (such as private deal structures and public and private fee levels).

9. **External Investment Management is Beneficial**: External investment organizations can often offer specialized expertise and/or greater resources and/or greater flexibility than internal personnel for various investment strategies.

10. **Investment Consultants:** Utilization of consultants should be focused on situations where there is a demonstrable need in at least one of the four (4) areas:

    a) Independence: When ASRS' protocols or checks/balances can be enhanced.

    b) Perspective: When ASRS' comparative understanding can be enhanced.

    c) Special Skills: When their use can enhance IMD resources.

    d) Resource Allocation: When IMD's resources can be enhanced.

11. **Trustee Expertise**: Trustees often have expertise in various areas of investment management and that this expertise should be utilized.

NOTE: Caveat Statement Regarding Personnel & Process Capability: The ASRS is somewhat limited in its ability to enhance IMD's capability due to state budgetary constraints, the state procurement process, and state administrative processes.

IMD Investment Beliefs

INVESTMENT GOALS AND OBJECTIVES

The ASRS has established a set of Investment Goals and Objectives that describe the macro-level expected outcome that the ASRS seeks to achieve. Each investment goal contains a measurable objective, which if met, should collectively achieve the Board approved agency's Purpose, Vision, and Investment Principles.

The ASRS Investment Goals and Objectives are designed to codify the most macro-level elevation criteria, which are at least partially controllable and relevant to the success of the ASRS' investment program.

Goal #1: Achieve a total fund rate of return equal to or greater than the actuarial assumed interest rate.

Objective: Achieve a 20-year rolling annual rate of return equal to or greater than 8%.

Goal #2: Achieve a total fund rate of return equal to or greater than the asset allocation benchmark.

Objective: Achieve annual and 3-year rolling annual rates of return equal to or greater than the return of the ASRS asset allocation benchmark.

Goal #3: Achieve a total fund rate of return equal to or greater than the amount projected in the most recent asset allocation study.

Objective: Achieve a 5-year rolling annual rate of return equal to or greater than the ASRS asset allocation study.

Goal #4: Achieve asset class net rates of return equal to or greater than their respective broad asset class benchmarks.

Objective: Achieve annual and 3-year rolling annual investment class net rates of return equal to or greater than their respective broad asset classes (asset class performance).

Goal #5: Achieve portfolio-level net rates of return equal to or greater than their respective portfolio benchmarks (manager performance).

Objective: Achieve annual and 3-year rolling annual investment class net rates of return equal to or greater than their respective portfolio benchmarks (asset class performance).

Goal #6: Ensure sufficient monies are available to meet cash flow requirements.

Objective: Ensure all distribution payments, refunds and other cash-flow requirements are made from available cash balance and without utilizing alternate liquidity requirements.

ASRS Strategic Plan

INVESTMENT CONSTRAINTS

1. **Arizona State Statute**
   The ASRS monitors its investment compliance to applicable investment Arizona statutes and regulations. Checks and balances have been established which both reside within and external to the ASRS Investment Management Division. Reporting protocols are implemented and, as appropriate, disseminated to the Director and the Board.

2. **Time Horizon**
   The ASRS is managed on an on-going-concern basis with primary emphasis placed on long-term capital market expectations (20-30+ years), which are evaluated in the context of relevant ranges of probable investment return outcomes.

3. **Liquidity and Cash-Flow**
   The ASRS maintains a long-term investment horizon; however, managing liquidity and cash-flow is paramount to ensure that pension obligations, health insurance, member refunds, administrative payments and other cash-flow requirements are made. This requires Investment Management and

Financial Services Divisions to anticipate internal and external cash-flow needs in order to preclude the use of alternative liquidity vehicles.

RISK MANAGEMENT, MONITORING AND REPORTING

The ASRS applies a risk management framework for identifying, managing and reporting on ASRS Investments. These include, but are not limited to, operational risk (e.g., internal and external portfolio(s) guideline compliance, cash management, securities lending, IMD business continuity, etc.) and investment risk (e.g., deviations from target allocation, manager oversight, performance measurement/attribution, ability to achieve investment objectives, etc.).

Responsibilities reside with the ASRS investment staff, custody bank, external consultants, investment managers, and ASRS Internal Audit.

Reporting periodicity and the level of investment information dissemination vary depending upon target audience. Daily report generation and investment monitoring reside with the custody bank and IMD/Internal Audit; Quarterly/Annual aggregate, portfolio positions, and asset class performance are reported to the IC/Board.

The use of leverage is defined in the applicable ASRS investment documentation. For separate account public market investments (internally or externally managed portfolios), authorization to permit or not permit leverage is explicitly denoted in the managers' Letter of Direction and Clarification; monitoring is conducted by IMD and ASRS consultants. For commingled public and private markets investments, authorization to permit or not permit leverage is explicitly denoted in the managers' contracts or partner agreements; monitoring is conducted by the designated partnership agreement external auditor and, as applicable, reviewed at limited partnership advisory meetings.

The use of derivatives is defined in the applicable ASRS investment documentation. For separate account public market investments (internally or externally managed portfolios), authorization to permit or not permit derivatives is explicitly denoted in the managers' Letter of Direction and Clarification; monitoring is conducted by IMD and ASRS consultants. For commingled public and private markets investments, authorization to permit or not permit derivatives is explicitly denoted in the managers' contracts or partner agreements; monitoring is conducting by the designated partnership agreement external auditor and, as applicable, reviewed at limited partnership advisory meetings.

ASSET ALLOCATION

As part of strategic asset allocation development, the ASRS asset mix will reflect investments in strategic and tactical asset classes and strategies whose collective risk/return profile are anticipated to achieve its long-term investment rate of return goals and objectives.

The ASRS employs a dynamic strategic asset allocation study approach whose initiation and periodicity will primarily be a function of market dynamics. The strategic asset allocation is used to determine the long-term policy asset weights. Investment opportunities and asset classes are constantly evolving and developing, such that they may become attractive and suitable for institutional investment portfolios before the next scheduled policy review. Therefore, asset allocation reviews in addition to periodic studies are conducted as warranted or triennially, whichever is shorter.

The strategic asset allocation study may include, but not be limited to, the following:

- Discussion and analysis of existing and evolving asset classes and investment strategies.
- Evaluation of expected sources of investment returns, risk and diversification (quantitatively/qualitatively).
- Reviewing investment industry developments (academic and pragmatic).
- Utilization of quantitative tools (e.g., efficient frontier mean-variance optimization, risk budgeting) and evaluation of multiple scenarios.
- Reviewing and engaging discussions regarding capital market assumptions.
- Reviewing asset allocation policies from other public and non-public entities.

Asset Allocation Policy Schematic

Rebalancing

The ASRS has established and maintains an asset class rebalancing policy(s) which encompasses the guidelines and processes for identifying and determining potential courses of action precipitated by the ASRS asset class over/under weight deviations relative to its broad strategic asset allocation policy (SAAP), ASRS cash-flow needs and/or to take tactical positions between and within SAAP asset classes.

The frequency and magnitude of portfolio rebalancing is determined by the Investment Rebalancing Committee consisting of the Director, CIO, and IMD Asset Class Portfolio Managers. The CIO reports asset class rebalancing activities to the Director and, through the Director, to the Investment Committee and full Board.

VOTING OF PORTFOLIO PROXIES

The ASRS votes its ownership interest with an objective of maximizing the present value of its investment. Proxy voting for the ASRS internally-managed equity (“E”) portfolios and those assigned to external U.S. and non-U.S. equity managers shall not be influenced or directed by political or social prerogatives that may diminish or impair the economic value of an investment.

The ASRS currently engages Institutional Shareholder Services (ISS) and employs its research and voting guidelines for the voting of proxies for the “E” portfolios. This process is not applicable to ASRS externally-managed equity portfolios.

The ASRS external equity managers use their discretion to vote their portfolio proxies; voting records are monitored for consistency with both the individual external manager’s voting policy and the ISS proxy voting policy. External equity manager voting records found to be inconsistent with or different from the ISS proxy voting policy are researched and documented. IMD retains the right to direct external equity managers’ voting on any issue(s) if doing so is deemed beneficial to the Fund.

SECURITIES LITIGATION

The ASRS monitors and participates in securities litigations when appropriate to protect the ASRS interests. From time to time, class action lawsuits are brought against companies, their directors, and/or their officers, as well as third parties such as the companies' independent public accountants, for alleged violations of federal and state securities laws relating to various disclosure obligations and breaches of fiduciary or other duties. As a shareholder or bondholder, the ASRS may join or initiate a securities class action or pursue a private action when securities fraud and other acts of wrongdoing have taken place.

Monitoring and reporting is carried out by the ASRS contracted outside counsel who may make recommendations to the ASRS and depending on the merits of the recommendation are discussed by the Securities Litigations Oversight Committee (SLOC). In the event the SLOC recommends the ASRS consider pursuing lead plaintiff or private action, Board approval is required before such action can be taken.

SECURITIES LENDING

The ASRS is allowed to lend securities with either the custody bank or tri-party in a separate account or commingled security lending structure. The IMD will determine the ASRS securities lending program parameters (risk profile, aggregate lending balance, types of securities on loan, collateral requirements, etc.). The ASRS securities lending program primarily focuses on identifying loan intrinsic value.

MANAGEMENT OF INVESTMENT MANAGEMENT FEES (COST)

The ASRS strives to maintain an efficient and relatively low aggregate investment management fee structure. The ASRS internally-manage public market portfolios are managed to provide beta-like market returns with low management fees (approx 1 bps); external public and private portfolios are anticipated to generally provide alpha, take active risk and enable the ASRS the ability to access market capital opportunities which may not be available through ASRS internal investment program.

To the extent possible, the ASRS negotiates and monitors investment fees for external public and private investment managers. For external public equity managers, securities-level transaction(s) cost analyses will be evaluated by IMD staff. Those managers whose transaction costs appear high relative to the market in which they trade or who use soft dollars may be subject to participation to the ASRS commission recapture program.

The ASRS IMD staff will oversee public manager portfolio transitions, e.g., securities from one public manager to another. These transactions may be executed on a security-level basis by either IMD staff or through an intermediary who may possess skills and/or can execute transactions on a more effective cost basis. Pre- and post-transaction cost analyses (commission, trading costs, market impact, etc.) are evaluated by the IMD staff.

ROLES & RESPONSIBILITIES

The ASRS Board governance structure provides the Investment Committee (IC) with general investment oversight responsibilities. In addition, the Directors' Asset Class Committees implement Board policies and provide detail oversight of the ASRS investments. Specific duties of the IC and Asset Class Committees are outlined in the ASRS Board Governance Policy Handbook.